

General Studies – 1; Topic: Poverty and developmental issues

Role of Agriculture in Delhi Air Pollution

1) Introduction

- Delhi has registered its worst air quality in recent times.
- Government should take urgent measures to prevent air pollution in order to stem the current impact as well as the future cost of healthcare.

2) Reason for Delhi Air pollution

- Paddy stubble burning in neighbouring Haryana and Punjab is a major reason for affecting air quality in Delhi during the onset of winter.
- Burning of coal, wood, dry leaves and of garbage at a waste disposal ground led to pollution in Delhi.
- Burning of crackers can be added to that list as well
- sources of pollution such as road dust, vehicular pollution and open burning
- exhausts from automobiles, industry and thermal power plants
- Winter is also the time when generally the westerly winds prevail and a giant plume of smoke covers north India.
- Intensive agriculture is also a contributor to greenhouse gasses like, carbon dioxide, methane and nitrous oxide causing climate change
- Only 20 per cent of the pollution in NCR is accounted for outdated farm methods. A whopping 80 per cent of air pollution in the capital is because of sources within the city and NCR.
- Lack of political involvement in solving the pollution crisis and its residents to not compromise on their lifestyle choices.
- The capital has the highest level of high-emission vehicles in the country and it has more cars than it can handle.

3) Reasons for Stubble burning

- Stubble burning is a common practice followed by farmers to prepare the field for sowing of wheat in November as there is little time left between the harvesting of paddy and sowing of wheat.
- Burning of wheat residue is not necessary for the farmers because of the availability of technology and its higher economic value as dry fodder.
- Rice straw, however, is not used as fodder as it is found to be non-palatable to animals due to its high silica content.
- Because of its little economic value as animal feed and other general uses, farmers are prompted to burn it on the field instead of incurring a high cost on collecting it.
- Even though farmers are aware that the burning of straw is harmful to health, they do not have alternatives for utilising them effectively.
- The farmers are ill-equipped to deal with waste because they cannot afford the new technology that is available to handle the waste material.

4) The rice-wheat rotation

- Extensive development of irrigation, assured price and secured market has induced farmers to grow paddy and expand the area of cultivation considerably over time.
- Farmers in this traditionally wheat-growing belt started cultivating rice and wheat in rotation year after year.

- Various studies have shown that the rice-wheat rotation has put land and other resources under severe strain, resulting in depletion of soil nutrients, decline in water table, build-up of pests and diseases, and micronutrient deficiency.
- Crop diversification with vegetables and fruits hit a roadblock due to marketing problems.
- Farmers have been lured into cultivating more and more from their fields mainly because of faulty agriculture policies followed for many decades.
- Organic matter is the life blood of any top soil but in regions of north western India organic carbon content is constantly being depleted at a rapid rate

5) Solution

- It is important to diagnose and address the fundamental problems that force the farmers to burn the paddy straw
- blaming only the farmers may not solve the problem of air pollution and there is a need to find sustainable technological solutions
- The available paddy straw can be effectively used for power generation, overcoming the problem of disposal of crop residues and power deficit in the region.
- There is great potential for making investments in paddy straw-based power plants which can help avoid stubble burning and create employment opportunities.
- Incorporation of crop residues in the soil can improve soil moisture and help activate the growth of soil microorganisms for better plant growth.
- suitable machinery for collection, chopping and in situ incorporation of straw is required
- Convert the removed residues into enriched organic manure through composting.
- New opportunities for industrial use — such as extraction of yeast protein — can be explored through scientific research.
- A comprehensive restructuring of the agricultural economy is required
- Government should prioritise public health and take an active interest in improving farm practices across India.
- A new variety of arhar (pigeon pea) has the potential to be grown in the paddy-growing regions of Punjab, Haryana and Uttar Pradesh and eventually in all of India.
- Most important, arhar straw, unlike paddy straw, is green and can be ploughed back into the soil.
- pulses will use less fertiliser, less water, and fewer emissions, and in addition will replenish the soil with nitrogen unlike paddy which depletes the soil

6) Conclusion

- There is also a need to develop rice varieties that are both rich in grain yield and high in straw quality.
- Use of such dual-purpose rice varieties will help to maintain food security, farm income and improve environmental sustainability.
- Major shift in policy that can reduce pollution while also promoting indigenous research and science, incentivising pulses production, and rationalising pricing more broadly.
- Converting crises into opportunities is the hallmark of good public policy.